Fossils in Iowa

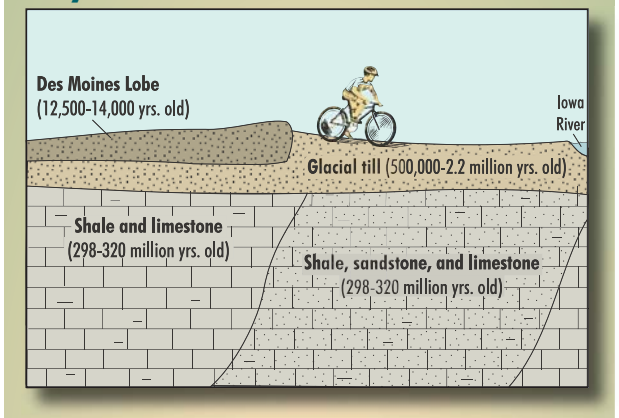
Crinoids. Often called "sea lilies," crinoids (cover photo) are actually related to the modern starfish. Most crinoids live in shallow seas, but some have been found as deep as 6000 meters below the surface.

Trilobites display a three-lobed, segmented skeleton, often with distinct eyes. They belong to an extinct group of bottom-dwelling, hard-shelled arthropods that scavenged the ancient sea floor. Whole specimens are highly prized by collectors (photo above).

Nautiloids are a subclass of marine mollusks that possess an external shell (photo right). They flourished during the early Paleozoic era, including the Silurian age. During that time they were the main predatory animals, and had an astonishing variety of shell shapes and forms. Some 2,500 species of fossil nautiloids have been identified, but only a few species are around today.

Brachiopods are among the most common fossils found in Iowa. Looking similar to mollusks of today, brachiopods (photo right) lived inside the protective cover of two hinged shells, attached to the floor of the warm, shallow seas that once covered Iowa.

Day 4 Milestones



Start: Ames
South Skunk River: 2.0 miles
Indian Creek: 12 miles
Colo wetland: 19.5 miles
Des Moines Lobe/So. Iowa Drift Plain Boundary: 24.6 miles
Iowa River: 39.5, 60, 74 miles
Finish: Tama – 75.5 miles

For more information...

A brochure that explains the common **Fossils of Iowa** and includes numerous photos is available online at: www.igsb.uiowa.edu/gsbpubs/pdf/EM-26.pdf.

If you're interested in learning a bit more about the **Landscape Features of Iowa,** such as karst topography, glacial moraines, etc., you can view them online at: www.igsb.uiowa.edu/gsbpubs/pdf/EM-28.pdf.

A common feature found on the Iowa landscape is the **Glacial Erratic,** or large boulder, left behind after glaciers retreated northward. Many of these erratics are bigger than a car and have been here for centuries. You can read more about glacial erratics at: www.igsb.uiowa.edu/browse/boulders/boulders.htm.

RAGBRAI 2008

Learn about the Land

Day 4

Wednesday, July 23

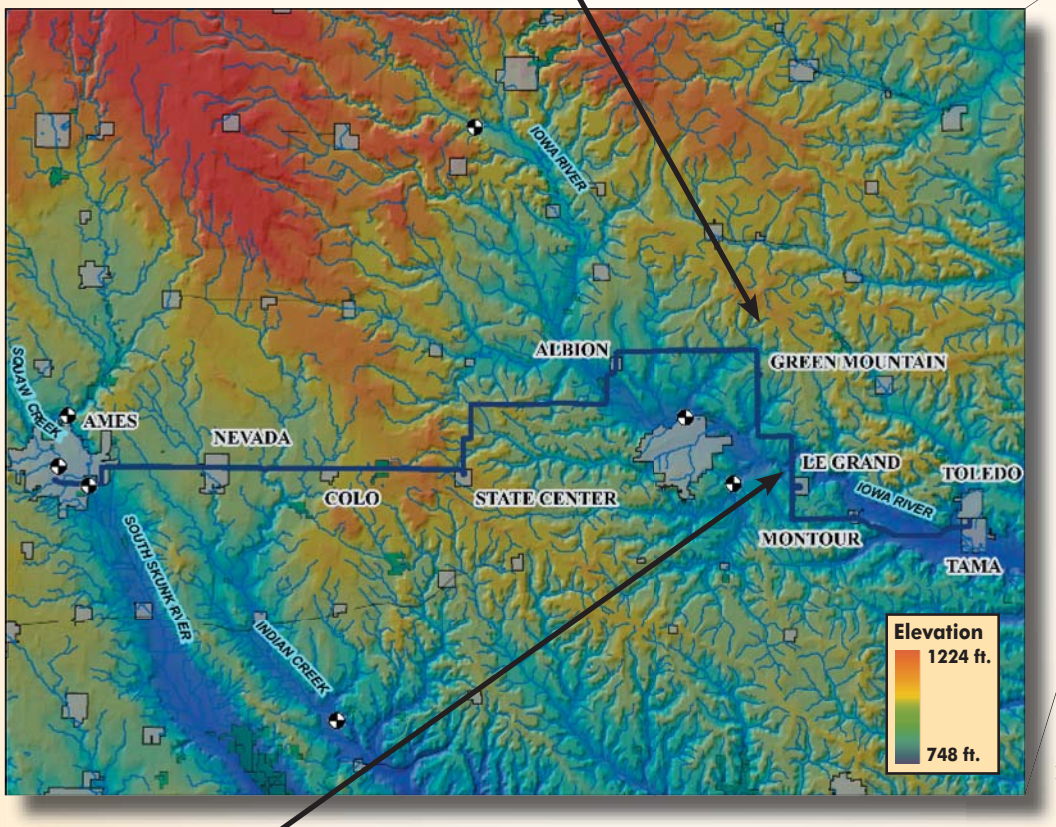
Iowa DNR – Geological and Water Survey
109 Trowbridge Hall
Iowa City, IA 52242-1319
(319)-335-1575
www.igsb.uiowa.edu

US Geological Survey
Iowa Water Science Center
400 S. Clinton St.
Iowa City, IA 52240
(319) 337-4191
http://ia.water.usgs.gov

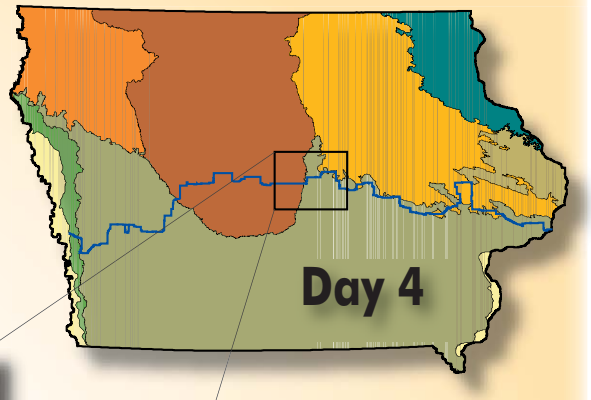
Today's ride departs Ames and heads towards Nevada. The Ames area is one of the classic areas to view **elongated hummocks.** These landforms are discontinous, lower relief curvilinear ridges which are east-west trending features. At one time geologists thought these hummocks formed at the base of the glacier due to glacial movement. It is now understood that these features may have developed within the glacier, in a large crevasse field that formed behind the ice (Bemis Moraine) margin as the ice stagnated and melted.

A number of limestone quarries are located in the area around LeGrand. These quarries, as well as recent roadcuts to the east along Highway 30, expose limestone and dolomite of the Mississippian-age Chapin, Maynes Creek, and Gilmore City formations. These formations were originally deposited in a shallow tropical seaway teaming with marine life about 345 million years ago. The fossils amassed in the **LeGrand quarries** during decades of collecting (particularly by local resident B.H. Beane) have become world famous, primarily for the abundance of perfectly preserved **crinoids.**

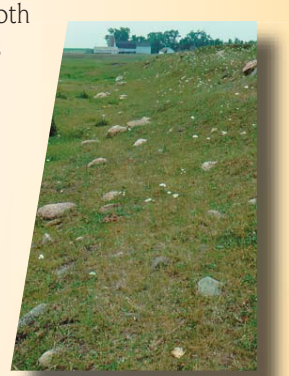
As you near the Story County line between the towns of Colo and State Center, you will reach the edge of the Des Moines Lobe. For the rest of RAGBRAI you will remain very near the boundary between the **Iowan Surface** (north) and the **Southern Iowa Drift Plain** (south). The Iowan Surface, which makes up northeast Iowa, was subjected to an intense period of cold between approximately 16,500 and 21,000 years ago. This intense period of cold was characterized by periglacial processes including freeze-thaw activity, strong winds and solifluction creating gently rolling topography and a low relief landscape. The Iowan Surface is underlain by the same material as the Southern Iowa Drift Plain, but much of the Pre-Illinoian glacial till has been eroded.



USGS streamflow station
Parks and Preserves



Characteristic features of the **Iowan Surface** include stone lines, glacial erratics (large boulders carried by glaciers), and paha (northwest-trending linear ridges). Both stone lines and glacial erratics are lag deposits left behind as erosion carried away finer materials. Stone lines are often covered by a thin layer of loess and are only visible in cross-sectional views. Numerous glacial erratics are found throughout the area and may be observed in fields along the route.



Most of the productive farmland in Iowa is located on the **Tama silt loam,** the state soil of Iowa! The soil series was first identified in Blackhawk County in 1917 and the type locality is located in Tama County. The Tama soil series has been identified in 26 counties in Iowa and nearby in Illinois, Minnesota and Wisconsin. Tama soils are very deep, well-drained soils formed in thick loess (wind-blown silt). These soils may be found on interfluves, side slopes, uplands, and mantling stream terraces. Tama soils formed in prairie areas under relatively humid climatic conditions. Native vegetation is big bluestem, little bluestem, switchgrass and other tall grass prairie plants. Nearly all level to gently sloping areas of Tama soil are cultivated, typically with corn and soybeans.